

Intralesional Steroid Therapy Reduces Stricture Following Gender-Affirming Vaginoplasty In Patients With Keloid History

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BACKGROUND

Gender-affirming vaginoplasty carries risk of wound-related complications, including granulation tissue, neovaginal stricture, and introital stenosis.¹ While traditional risk factors such as smoking and diabetes have been studied, the impact of aberrant wound healing phenotypes remains unclear. Given shared fibroproliferative pathways between keloid/hypertrophic scarring (KHS) and stricture formation,² the present study sought to evaluate whether a preoperative history of KHS independently predicts postoperative complications following vaginoplasty and whether intralesional steroids attenuate risk.

METHODS

Study Design

A retrospective review was performed of all patients who had undergone primary vaginoplasty at a single academic center between 2017 and 2023.

Variables

The primary outcome was incidence of postoperative stricture or stenosis. Exposures of interest included patient history of keloids or hypertrophic scarring and postoperative intralesional steroid injection.

Statistical Analysis

Firth logistic regression assessed the association between KHS history and complications, adjusting for age, body mass index (BMI), smoking history, diabetes mellitus (DM), and race. This was followed by a sensitivity analysis including both a postoperative steroid and a keloid + steroid interaction term to account for treatment effects. Statistical significance was set at $p < 0.05$.

RESULTS

In unadjusted analysis, KHS history was associated with 3.5-fold higher odds of stricture/stenosis (OR 3.54, $p = 0.001$). Age, BMI, diabetes, smoking status, and race were not significant. After adjusting for steroid use, KHS history remained independently predictive of stenosis (OR 3.41, $p = 0.010$). When evaluating steroids as an effect modifier, postoperative steroid treatment appeared protective with KHS (OR 0.28, $p = 0.135$), though did not reach statistical significance. Steroid use was initiated between 2-11 months postoperatively. Independently, steroid use correlated with stricture/stenosis, likely reflecting indication bias (OR 5.03, $p < 0.001$).

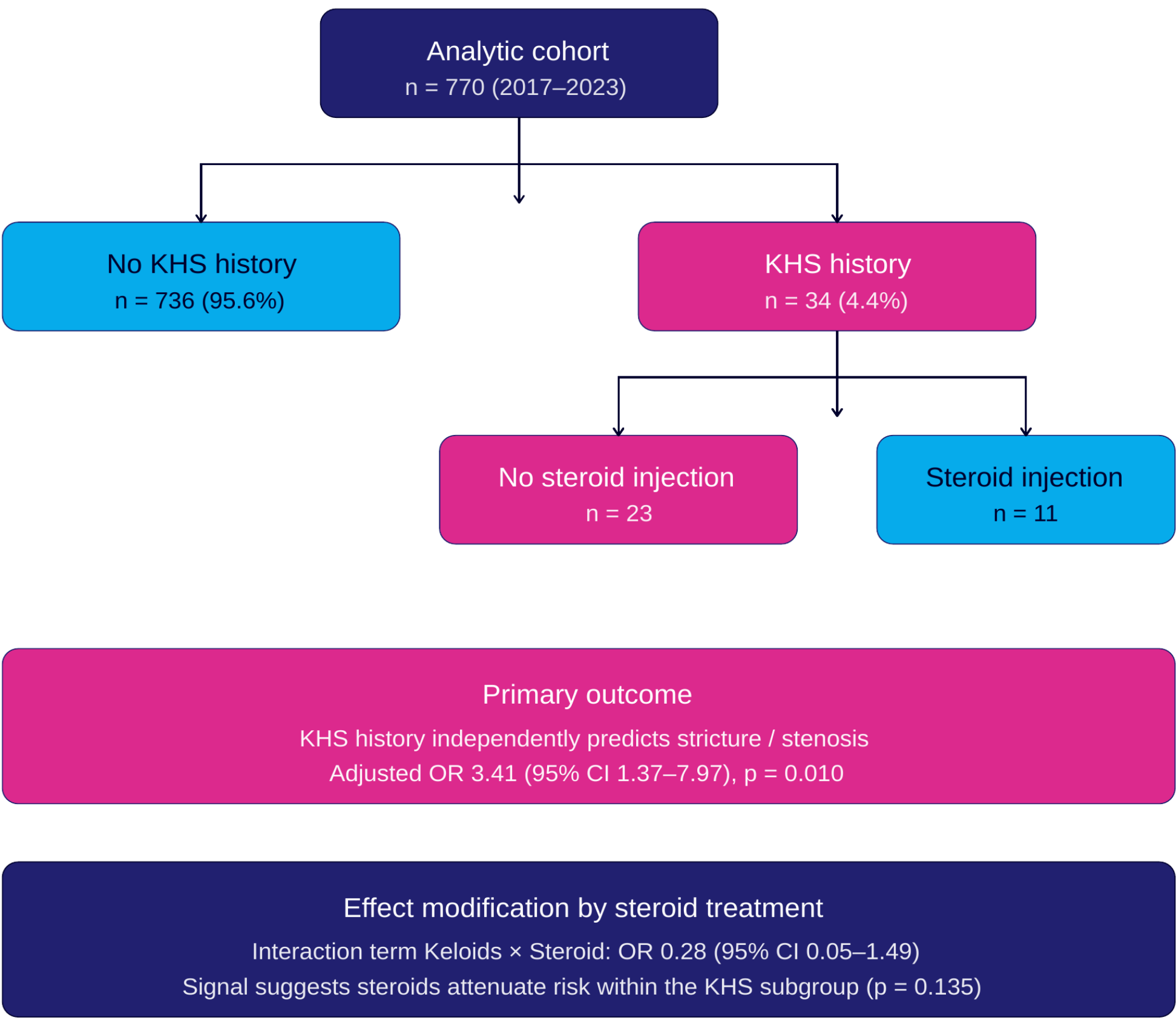


Figure 1. Cohort characteristics

Among 770 patients analyzed using Firth logistic regression, 34 had a history of keloid or hypertrophic scarring (KHS). Of these, 23 received no postoperative steroid injection and 11 received steroids. The primary outcome (stricture or stenosis) was independently predicted by KHS history after adjustment for steroid use and other covariates.

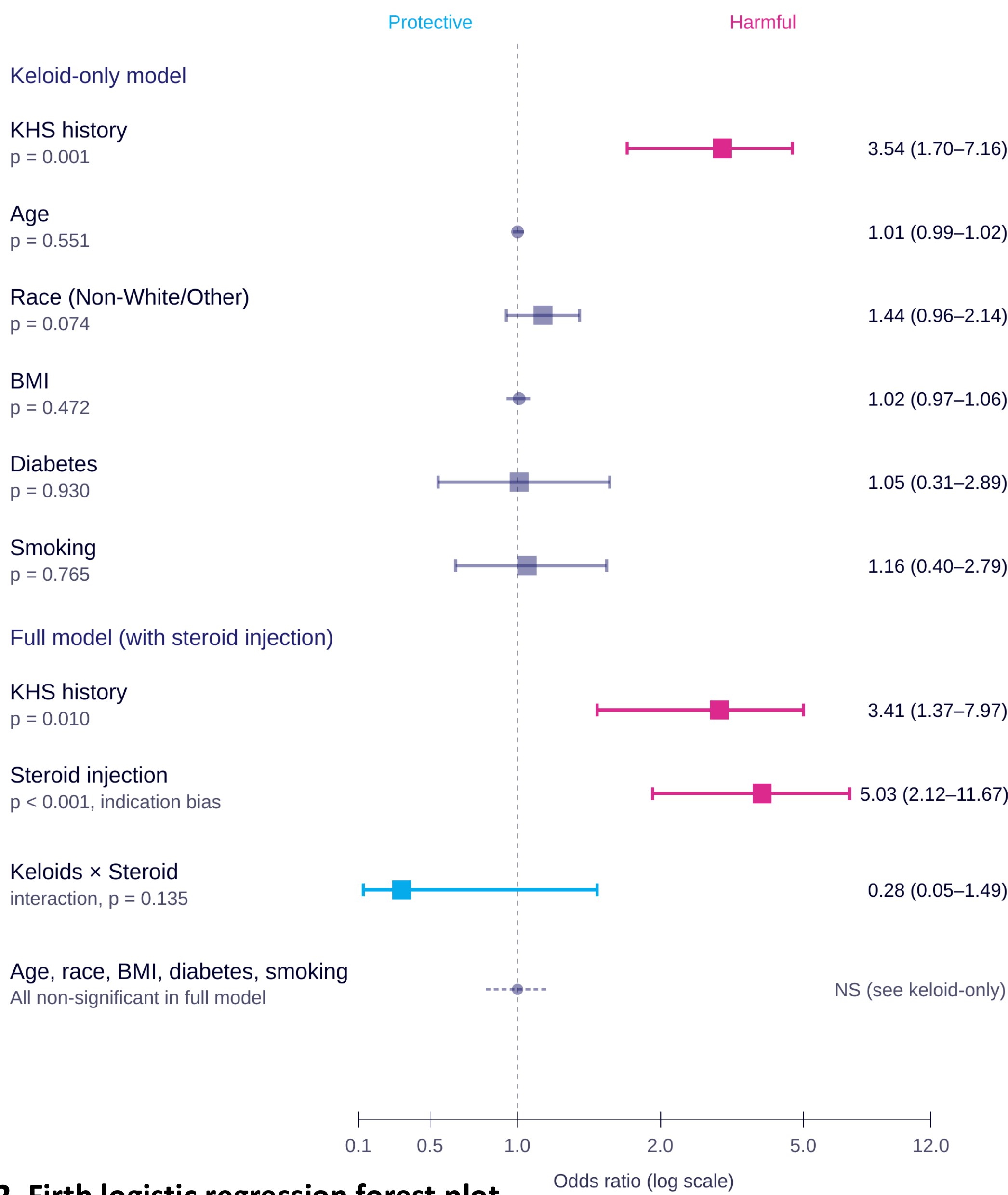


Figure 2. Firth logistic regression forest plot

Odds ratios with 95% confidence intervals for predictors of stricture or stenosis. The keloid-only model (top) adjusts for age, race, BMI, diabetes, and smoking; the full model (bottom) additionally includes steroid injection and a keloid × steroid interaction term. KHS history remained a significant predictor after adjustment (aOR 3.41, 95% CI 1.37–7.97, $p = 0.010$). The steroid main effect (OR 5.03) likely reflects indication bias, given that patients prescribed steroids may have already been displaying signs of stricture. The interaction term (OR 0.28) suggests attenuation of stricture risk within the KHS subgroup.

CLINICAL RELEVANCE

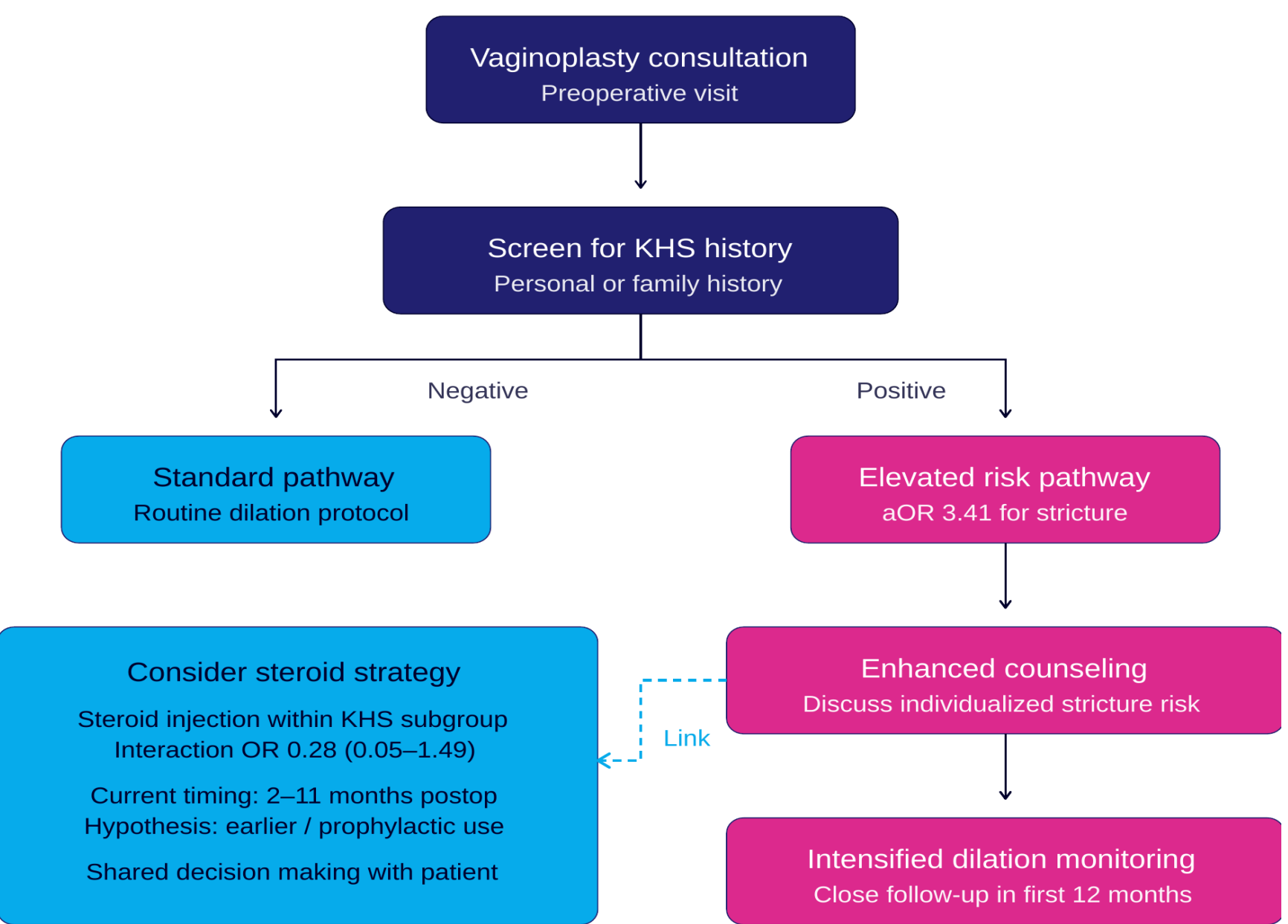


Figure 4. Proposed clinical screening and management algorithm

Preoperative screening for history of KHS may help stratify high-risk patients who should be offered enhanced counseling and intensified dilation monitoring. Patients in this high-risk group warrant consideration of postoperative steroid injection based on the observed study findings. Timing and prophylactic strategy should be addressed through shared decision-making.

CONCLUSIONS

History of keloids or hypertrophic scarring is a strong, independent predictor of developing vaginal stenosis or stricture. The use of postoperative steroids may reduce stricture rates in this population. These findings suggest that predisposition to systemic scarring may affect neovaginal healing. Identification of high-risk patients can inform preoperative counseling, postoperative dilation monitoring, and consideration of prophylactic interventions such as steroid injections.

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REFERENCES

- Bustos SS, Bustos VP, Mascaro A, et al. Complications and Patient-reported Outcomes in Transfemale Vaginoplasty: An Updated Systematic Review and Meta-analysis. *Plast Reconstr Surg Glob Open*. 2021;9(3):e3510. doi:10.1097/GOX.00000000000003510
- Gauglitz GG, Korting HC, Pavicic T, Ruzicka T, Jeschke MG. Hypertrophic Scarring and Keloids: Pathomechanisms and Current and Emerging Treatment Strategies. *Mol Med*. 2011;17(1-2):113-125. doi:10.2119/molmed.2009.00153